Redfish Bay Sockeye Salmon stock assessment

Abstract: In the summer of 2002, the Sitka Tribe of Alaska, Alaska Department of Fish and Game, and the United States Forest Service undertook a cooperative project to evaluate the effects of an illegal harvest in 2000 and the subsequent legal subsistence harvest of sockeye salmon at Redfish Bay, Alaska. Adults were enumerated through a weir, a portion of which were sampled for sex, length, and scales; another portion was also marked and later recaptured on or near their spawning grounds. The weir count of adult sockeye was 24,128. The escapement estimate generated from the associated mark-recapture experiment was 34,015 sockeye salmon, with a 95% confidence interval of 28,442 – 43,443 fish, and a coefficient of variation of about 10%. The discrepancy between the weir count and the mark-recapture estimate may have resulted from a later run of fish evident below the weir when it was discontinued. The harvest census of 1,309 sockeye salmon revealed a small portion of the run was actually impacted this year, at less than 5% of total returns. Plankton analysis appeared high and abundant but showed a distinct lack of the preferred *Daphnia sp* and other cladocerans. Age, sex, and length analysis also demonstrated that most Redfish Bay sockeye salmon smolt after two years in freshwater, which makes their food requirements higher but also would enable their survival as larger individuals in the open ocean. For such a small lake, the Redfish Bay system is remarkably productive.

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